Ortega, Rene

From: Ortega, Rene
Sent: Monday, March 05, 2001 4:40 PM
To: Benefield, Philip
Cc: Aggarwal, Pravin
Subject: RE: Potential Engine Failure Items / Areas

Phillip,

Pravin and I talked about this and this is what we came up with:

Nozzle/Mcc: Aft Manifold, cold wall leaks, G15 flange, MCC welds 12 & 15, MCC Low life mount (lug) areas.

Powerhead/Pre-burners/Main Inj.: Lox post, Preburner liners, hot dog area, inter propellant plate, heat exchanger.

HPFTP/AT: Blades, vanes, turbine inlet housing, turbine exit diffuser, turbine housing, lift off seal.

HPOTP/AT: Turbine area in general.

Other: 7021 Duct (vibrations) and POGO Duct.

Rene.

From: Benefield, Philip
Sent: Thursday, March 01, 2001 4:38 PM
To: VanHooser, Katherine; Ray, Dawn; Swanson, Greg; Ortega, Rene; Aggarwal, Pravin
Cc: Kynard, Mike
Subject: Potential Engine Failure Items / Areas

As part of our studies for the Advanced Health Management System we've used the SSME FMEA and associated QRAS numbers to rank which areas of the engine are most likely to fail and consequently which areas we should direct our health monitoring attention to (so to speak). However, everyone has their own opinion as to the validity of the FMEA and QRAS scores -- most of which isn't good.

So, this leads me to you all -- the engineering experts of the SSME. People that have signed more MRs and analyzed more SSME parts than anyone at MSFC. I'd like to get your opinion on what you consider the most failure prone items / areas on the SSME -- in other words, with all the information you all have from working the program for the last x number of years, what items worry you?

Now, to be more specific, I'd like to break it up into the following components / areas:

* Nozzle / MCC
* Powerhead / Pre-burners / Main Inj.
* HPFTP/AT
* HPOTP/AT
* Other

For each of these categories, please give me your "top 5" worry items. Only answer those areas with which you have expertise. (Katherine: turbo, Dawn: CD, ...). In general, I'm looking for items on a piece-part level, i.e. HPOTP/AT TAD or Nozzle aft manifold, although I don't want to constrain you... maybe you're worried about a HPFTP/AT turbine-end failure...

Here's another way to think about it: Assume someone calls you and says there's been an engine failure at SSC at it was related to one of the five areas I listed above. What's the first five things that would go through your head in terms of what specific part (maybe assembly) failed?

Please give me a call / e-mail if you have any questions on this. As I've said, I'm looking for what you think based on your accrued knowledge; I'm not looking for a detailed study. I would think this exercies shouldn't take more than maybe an hour at most.

Thanks,
Philip

Philip A. Benefield
NASA / MSFC SSME Project
(256) 544-6146

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